in Plymouth Latin was added as a subject in the *elementary* course may be put beside another fiction (p. 68), that the *elementary* schools "provided for generally by law in New England were mainly to teach Latin." This is a confusion between elementary and grammar schools which is unpardonable in a work of this character.

The account of the development of the subjects of spelling, writing, and ciphering is inaccurate and inadequate. The author thinks there was no regular spelling-book in use "up to perhaps 1700, or even later." Not only were numerous spelling books printed in England between 1600 and 1700, many of which must have been imported, but Stephen Day, of Cambridge, Mass., printed "Spelling-Books" between 1642 and 1645. In the inventory of the stock of Michael Perry, 1700, a Boston bookseller, there are mentioned "12 Strong's Spelling bookes" and "20 Young's Spelling bookes" (see Littlefield's *Early Schools and School-Bookes of New England,* pp. 118, 127). In the account of Cyphering (p. 36) important statements and generalizations are made, respecting the practice and extent of the study of arithmetic, but not a shred of evidence is produced in support of these statements.

Certain features of the book are praiseworthy. The author has brought together a large amount of information on textbooks used and has given some notion of their nature and contents. His descriptions of certain collegiate subjects are good—for example, science at Harvard. The curriculum at Harvard, however, is overemphasized, while little is said concerning that of other colleges founded before the Revolution.

The book is marred by the use of inelegant and slang phrases, introduced with the evident intention of catching the popular ear. For example, "Martin Luther had a rough tongue and he could take a swipe with it at the ecclesiastical armor of protection" (p. 88). Again "A voracious gosling was Porta, greedily swallowing anything that had Latin or Greek mold on it" (p. 185).

The history of the colonial curriculum is complicated and good contemporary sources are difficult to find. It is therefore particularly desirable that the canons of modern historical criticism should be applied to this subject. We have too many histories and studies which are remarkable for the number of statements unsupported by evidence, and for generalizations for which there is no good basis. There is great need of scientific and exhaustive monographs on various phases of American education, based on prolonged and extensive research in the sources.

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High-School Algebra. Advanced Course. By PROFESSOR H. E. SLAUGHT AND DR. N. J. LENNES. Boston: Allyn & Bacon, 1908. Pp. vii+194. $0.75.

Anyone who had read the first volume (Elementary Course) of this algebra must have awaited the appearance of the second volume with some interest. The elementary course measured up in a large degree to its avowed purpose, but it was obviously insufficient. Much of what one felt to be lacking in the first volume is contained in the advanced course, and the two combined make

a very complete treatment of the subjects covered. The question as to the wisdom of presenting the subject in two distinct courses is one upon which a theoretical opinion would be of little value. It will be settled in due time by practical experience.

Among the strong features of the book one notes the careful treatment of equivalent equations, and the repeated warnings to throw out results which do not satisfy the original equation. In this connection, the student is frequently reminded that there is no such thing as division by zero. Even some teachers may need to be reminded that $x=1$ is not a root of the equation

$$\frac{4x}{x^2-1}-\frac{x+1}{x-1}=1.$$

On the other hand, the statement (p. 159) that $x=-1$ does not satisfy the equation

$$\sqrt{x+5}=x-1$$

is very questionable. Why should the authors introduce the excellent notation $\sqrt{x+5}^{\,|}$ if it is not to be used to prevent ambiguity in just such cases. We all agree at once that $x=-1$ does not satisfy the equation

$$\sqrt{x+5}^{\,|}=x-1,$$

but I believe it is in conformity with the general usage to say that both 4 and -1 are roots of the equation as given.

In line with the marked tendency of most of the recent texts in elementary algebra, graphs are used very freely in the study of equations. This not only throws a helpful light upon the algebraic processes, but it lays an excellent foundation for the study of analytic geometry. But caution must be exercised at this point. The solution of simultaneous equations in two variables, even when the equations are linear, can, in general, only be *approximated* by measuring the co-ordinates of the point of intersection of the graphs. It should be made very clear that the really important method of solution is the process of elimination; and that, while the graphs may throw much light upon the solution, they do not furnish a method of solution.

The early introduction of the factor theorem and of the idea of solution of equations by factoring is most commendable.

The authors have treated the subject of variation clearly, and have given it the prominence that it deserves. Other textbooks are doing the same; and if students continue to come up to college with only the vaguest notions upon this most important and very simple subject, the fault will lie with the teachers.

The definition of irrational numbers is not quite rigorous. It is not shown that $\sqrt{2}$, for instance, "can be approximated by means of integers and fractions to any specified degree of accuracy." It *is* shown that one can find fractions whose squares will approximate 2 to any specified degree of accuracy—which is a different matter. The definition, to fit the context, should read:

If a number is not the kth power of an integer or a fraction, but if one can find integers or fractions whose kth powers will approximate the number to any specified degree of accuracy, then the kth root of such a number is called an *irrational number.*

The statement at the beginning of the chapter on logarithms that "the

operations of multiplication, division, and finding of powers and roots are greatly shortened by the use of logarithms" needs qualification.

The use of S_n instead of S to denote the sum of n terms of a progression will clear up part of the trouble which sometimes arises at this point; but the use of the phrase "last term" and the corresponding letter l also causes confusion. It still remains for some bold author to replace the l in such formulae as

$$l=a+(n-1)d$$

and

$$S_n=\frac{rl-a}{r-1}$$

by a_n.

The proof by induction of the binomial theorem for positive integral exponents ought to be made complete. To the best of the present writer's knowledge, this has not been done in any elementary algebra. It is only necessary to show that the sum of the coefficients of the rth and $(r+1)$th terms in the expansion of $(a+b)^n$ is equal to the coefficient of the $(r+1)$th term in the expansion of $(a+b)^{n+1}$, which is a step not at all too difficult for a textbook of this grade.

But when one has said the worst that can be said about the book, the fact remains that the defects are neither numerous nor serious; and that in many important respects, it sets a new and higher standard for high-school algebras.

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Select Translations from Old-English Prose. Edited by ALBERT S. COOK AND CHAUNCEY B. TINKER. Boston: Ginn & Co., 1908. Pp. viii+296. $1.25.

The well-known doggerel lines about Anglo-Saxon,

"All are dead who spoke it;
All are dead who wrote it;
All are dead who learned it;
Blessed death! They earned it!"

voices the general opinion regarding the literary virtues of Old-English literature, and the particular opinion of those who have toiled through the linguistic difficulties of our earliest mother-tongue. Nevertheless, an acquaintance with this literature should form an indispensable part of the knowledge of every student of comparative literature, of folklore, of English political, religious, legal, social, and literary history. Many students turn away from the laborious course of digging this knowledge out of the original tongue, and many dislike plodding through the time-honored translations in Bohn's libraries to separate the chaff and the grain. To garner the good of this voluminous literature requires no little effort and no small knowledge. These virtues, combined with sympathy and insight, mark the volume entitled *Select Translations from Old-English Prose.* The editors, encouraged by the favorable reception of a previous volume of selections from Old-English Poetry, have increased their credit with students of Old-English literature by compiling this volume. The book is made up of excellent translations, both selected and original, from the more interesting and valuable parts of Bede's *Ecclesiastical History;* from the *Old-*